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ABSTRACT

This report considers the research conducted in Finland on photocopying and how it relates to teaching methods, and attempts to develop a theoretical basis for evaluating such research. In the first part of the report, it is argued that studies of copying need to target four separate areas of concern--knowledge, attitudes, activity (quantitative and qualitative), and consequences--in order to develop a theory of copying which can be used to understand copying as it relates to copyright legislation. A model using this research paradigm is detailed as it relates to the copying done by teachers, with the optimum being defined as that situation where the teacher is sufficiently familiar with copying legislation that he or she has a positive--but moderate--attitude towards copying, and where the amount of copying corresponds to actual needs. The second part of the report considers the methodology used by 24 investigations of photocopying that were undertaken between 1977 and 1986, of which 19 were general investigations and 5 focused on one particular problem. The reliability of specific methodologies is considered, and the sampling and data collection methods employed by the studies are critiqued. The text is supplemented by 12 tables. (EW)

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STUDIES ON COPYING IN FINLAND IN 1977-1986
A Critical Analysis of the Methodological Solutions of the Studies

Jouni Kuusisto

The Finnish Ministry of Education and Kopiosto
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FOREWORD

The present research review "Copying Studies in Finland, 1977 -87", was commissioned by **the Finnish Ministry of Education** and **Kopiosto**. The report consists of two parts. The first part (chapters 1-2) presents the theory of copying and takes as its starting-point the use of copies in teaching. The second part (chapters 3-7) critically examines the methodological solutions of 24 copying studies and makes certain proposals for improving the reliability of the studies. "A study of copying studies" of this type is apparently the first of its kind in the world. The task has been intellectually challenging, occasionally arduous, and I have not been entirely able to avoid a perhaps over-heavy pedagogical emphasis, which results from my professional background (teacher). I have received invaluable help from **Eero Aarnio**, managing director of Kopiosto, from **Ulla Kuosmanen**, copyright agent, and from **Jukka Liedes**, negotiating officer at the Finnish Ministry of Education. I would also like to thank Tuula Granberg, B.A., who translated the report from Finnish into English.

Helsinki 3rd October, 1987 Jouni Kuusisto

1. THE STARTING POINTS AND GOALS OF THE STUDY

The present report is a summary of an investigation which critically examined the **aims**, **contents** and **methods** of Finnish copying studies. The analysis focused on 24 copying studies conducted between 1977 and 1986.

In order to analyze the target of the study and to establish the starting point for the theoretical examination, the concept of copying was classified into three main categories, as shown in Figure 1:

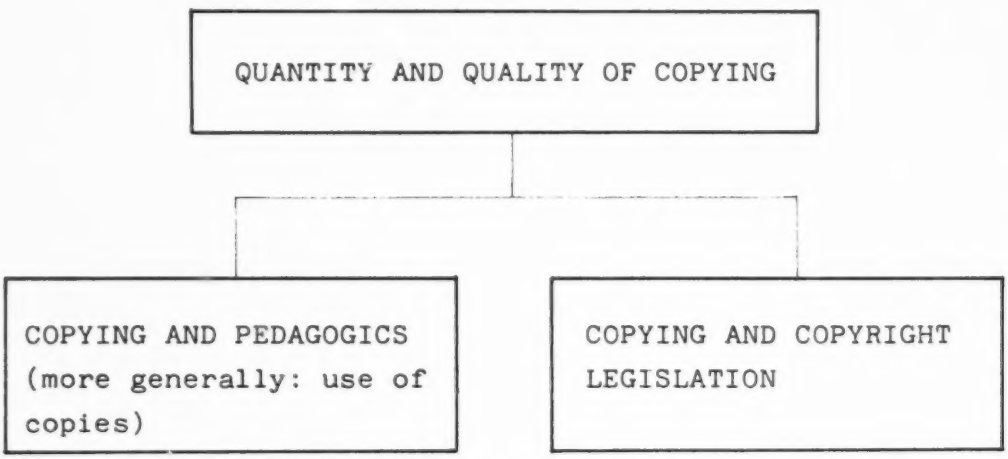
QUANTITY AND QUALITY OF COPYING
COPYING AND PEDAGOGICS (more generally: use of copies)
COPYING AND COPYRIGHT LEGISLATION

FIGURE 1. The main areas of copying

Copying studies have traditionally focused on examining the quantity and quality of copying. The quantity of copying as a concept is hardly likely to cause any interpretation problems. In contrast, the notion of "quality of copying (copies)" is more comprehensive and ambiguous in its conceptual content. The content categories related to pedagogics and copyright legislation shown in Figure 1 can be examined from both quantitative and qualitative aspects. The pedagogical criteria, however, tend to concentrate on the analysis of

qualitative issues; copying needs, copying targets and the pedagogical use of copies have traditionally been part of qualitative copying research. Copyright questions are often expressed in terms of the volume of copying: the more copying that is done and the more often it is done, the more probable it is that financial questions connected with the copyright law become emphasized as, for example, when copyright fees are paid to authors. Copyright issues become more qualitative as more consideration is given to the validity of the classification of copying materials or to the ethical-juridical and moral aspects of copying.

The **main objective** of this "study of copying studies" was to find out HOW TO DEVELOP THE RELIABILITY OF THE MONITORING SYSTEM OF COPYING, especially as regards its research methodology. Research methodology as a concept should be understood broadly. It includes the planning of the research strategy, the collection of information and the analysis of the results.

From the general objective **specific objectives** were derived and these were operationalized as the following problems:

1. WHAT was studied?
2. HOW was the study conducted?
3. WHEN was the study carried out?
4. WHY was the study made? (results were not given in this report)
5. WHAT RESULTS were obtained? (the results were not presented in this report)

Chapter 2 of the report casts a look at the theory of copying. The main areas of copying, shown in Figure 1, form the basis for this examination. Chapters 3-6 examine the results yielded by a critical analysis of 24 copying studies, focusing on each problem area (see above). Chapter 7 evaluates the reliability of the monitoring system and makes suggestions for the

development of certain methodological solutions.

2. THEORY OF COPYING

2.1. Quantitative study of copying

Under the concept of quantitative study of copying the following special areas can be included (Figure 2).

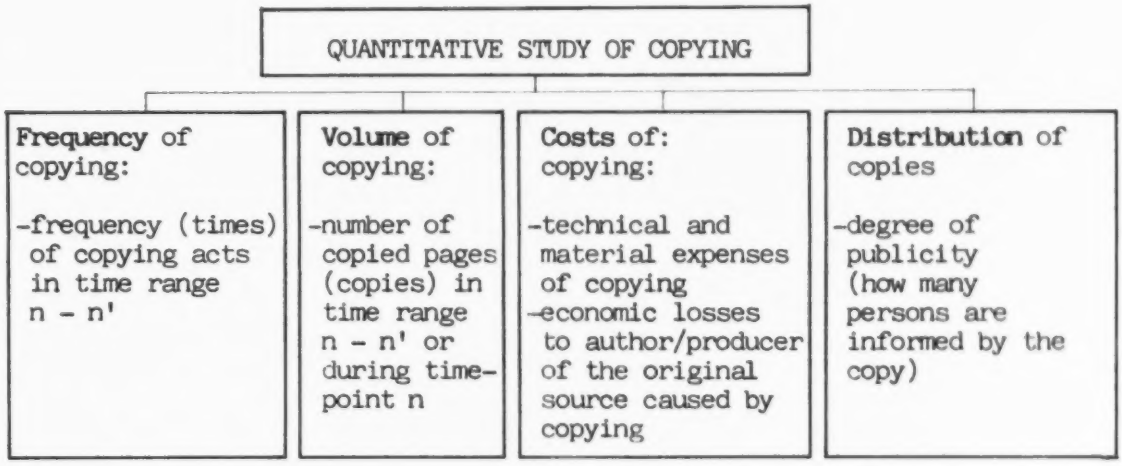
QUANTITATIVE STUDY OF COPYING
Frequency of copying:
-frequency (times) of copying acts in time range n - n'
Volume of copying:
-number of copied pages (copies) in time range n - n' or during time-point n
Costs of: copying:
-technical and material expenses of copying
-economic losses to author/producer of the original source caused by copying
Distribution of copies
-degree of publicity (how many persons are informed by the copy)

FIGURE 2. Specific areas of quantitative study of copying

Figure 2 presents the sub-areas of quantitative copying research as distinct aspects. In reality the opposite is often true: some or all of the special areas are in a causal relationship with each other. This can be illustrated by a simplified example: If a subject teacher takes about 30 copies twice a week, on average, for students in grades 7-9 in a school with single-class year groups it means that a total of about 180 copies a week (2 x 30 x 3 = 180) are taken. If the school has three parallel classes, the number of copies taken by the same teacher in a week would increase to 540, assuming that the same topics are taught in each grade (A, B, C) and

the same teaching materials (copies) ar used. Simultaneously the distribution rate of the copies rises and the costs of copying increase. The teacher's copying activity yields a certain amount of money to the author of the original source (e.g. textbook) in the form of copyright compensations. In the case of illegal copying (e.g. workbook), there is an opposite effect: the author loses the income which he would have received from sales of the workbook.

2.2. Qualitative approach

Copying can also be examined on the basis of its qualitative characteristics (Figure 3):

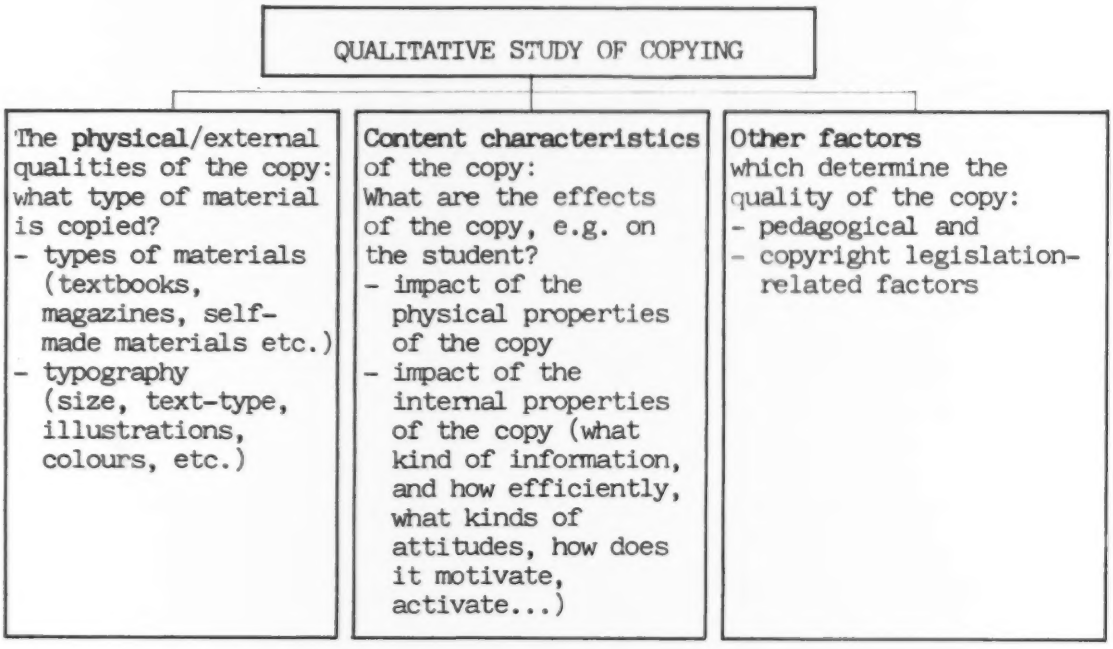
QUALITATIVE STUDY OF COPYING
The physical/external qualities of the copy: what type of material is copied?
- types of materials (textbooks, magazines, self-made materials etc.)
- typography (size, text-type, illustrations, colours, etc.)
Content characteristics of the copy: What are the effects of the copy, e.g. on the student?
- impact of the physical properties of the copy
- impact of the internal properties of the copy (what kind of information, and how efficiently, what kinds of attitudes, how does it motivate, activate...)
Other factors which determine the quality of the copy:
- pedagogical and
- copyright legislation-related factors

FIGURE 3. Special areas of qualitative copying study

In approaching copying from its qualitative aspects, we may ask 1) **what** is the copy **like** or 2) **what effects** does the copy have? If copies are analyzed merely according to their material types or typography, we are dealing with the external criteria of the quality of the copy. If we want to focus on the content characteristics of the copy, we face a more demanding analysis, namely the study of the learning process. In this case, we must investigate, among other things, how the copy material, through its external or internal properties, will, for example, influence student behaviour in the areas of knowledge, skills and attitudes. We are thus confronted by the basic didactic question: what is the impact of **teaching material** (copy) in the teaching-learning process? Pedagogical (didactic) questions are closely linked to this problem-setting (for more details see Chapter 2.3. "Pedagogical approach"). Copyright legislation also embraces several qualitative research areas, the main ones including juridical, ethical-moral and philosophical problems.

2.3. Pedagogical approach

When copying is linked with pedagogics, the problems can be approached in the following way: if we are going to teach students and take them towards certain aims and according to certain teaching contents, **how does a copy facilitate learning** as teaching material and how is it best incorporated into the basic forms (methods) of teaching? Figure 4 illustrates the thought processes of the teacher and his actions when he is planning a separate lesson or teaching unit.

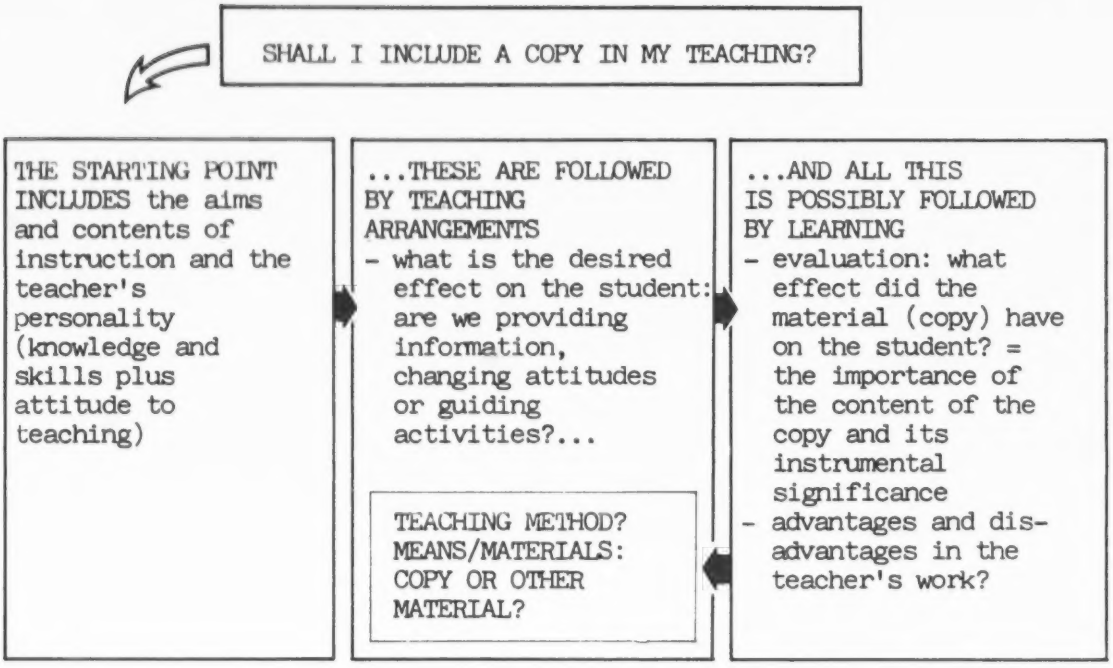
SHALL I INCLUDE A COPY IN MY TEACHING?
THE STARTING POINT INCLUDES the aims and contents of instruction and the teacher's personality (knowledge and skills plus attitude to teaching)
...THESE ARE FOLLOWED BY TEACHING ARRANGEMENTS
- what is the desired effect on the student: are we providing information, changing attitudes or guiding activities?...
TEACHING METHOD? MEANS/MATERIALS: COPY OR OTHER MATERIAL?
...AND ALL THIS IS POSSIBLY FOLLOWED BY LEARNING
- evaluation: what effect did the material (copy) have on the student? = the importance of the content of the copy and its instrumental significance
- advantages and disadvantages in the teacher's work?

FIGURE 4. Planning of instruction and choice of teaching material

Without further discussion of the problems of pedagogical planning, the sub-areas of pedagogical research are presented in Figure 5:

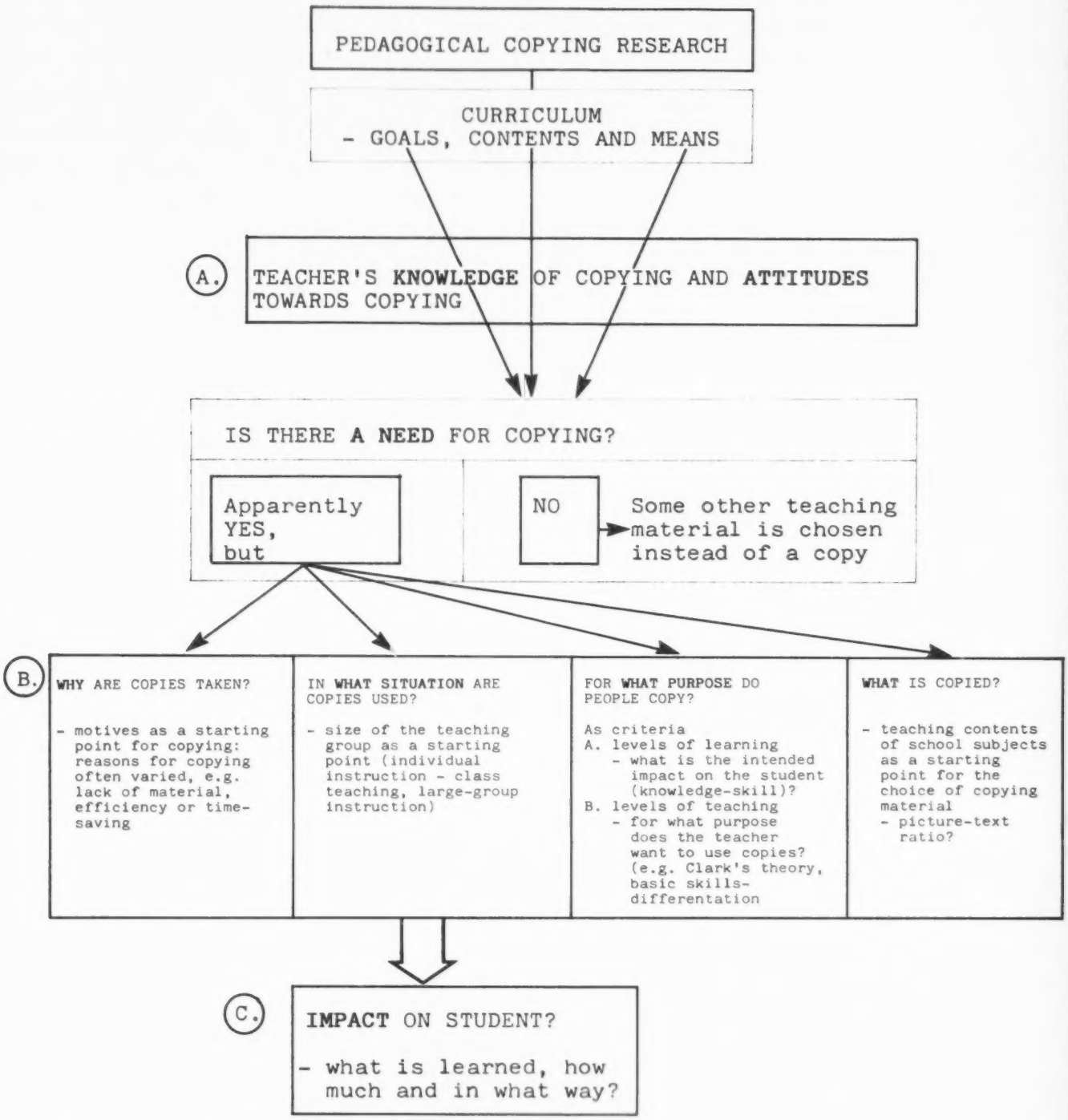
PEDAGOGICAL COPYING RESEARCH
CURRICULUM
- GOALS, CONTENTS AND MEANS
A.
TEACHER'S KNOWLEDGE OF COPYING AND ATTITUDES TOWARDS COPYING
IS THERE A NEED FOR COPYING?
Apparently YES, but
NO
Some other teaching material is chosen instead of a copy
B.
WHY ARE COPIES TAKEN?
- motives as a starting point for copying: reasons for copying often varied, e.g. lack of material, efficiency or time-saving
IN WHAT SITUATION ARE COPIES USED?
- size of the teaching group as a starting point (individual instruction - class teaching, large-group instruction)
FOR WHAT PURPOSE DO PEOPLE COPY?
As criteria
A. levels of learning
- what is the intended impact on the student (knowledge-skill)?
B. levels of teaching
- for what purpose does the teacher want to use copies? (e.g. Clark's theory, basic skills-differentation
WHAT IS COPIED?
- teaching contents of school subjects as a starting point for the choice of copying material
- picture-text ratio?
C.
IMPACT ON STUDENT?
- what is learned, how much and in what way?

FIGURE 5. Special areas of pedagogical copying research

Before deciding to choose a copy to facilitate instruction, the teacher probably gives some thought to four questions:

1) **Why** do I copy? --➤ Does it profit me or the students in terms of learning efficiency or time-saving?

2) **In what situation** do I use copies? --➤ Do I use them for remedial teaching or for whole-class teaching?

3) **For what purpose** do I copy? --➤ Ho should I teach in order to change student behaviour in accordance with the specific objectives defined in the curriculum? and

4) **What** is worth copying? --➤ What kinds of contents (text - pictures) do I choose to copy?

All four question presented above help to operationalize the theoretical concept of **copying need**: A global analysis of the copying need would be incomplete without some of the above-mentioned sub-areas.

2.4. Copyright legislative approach

When copying behaviour is connected with copying legislation, it can be assumed to consist of **knowledge, attitudes** and **activities.** Knowledge here implies an awareness of copyright legislation and of the copying norms. Attitude means willingness to copy and to know and to act according to the norms of copying or contrary to them. Activity consists of the actual copying (i.e. number of copying acts or number of pages copied).

Copyright holders and organizations responsible for these are aiming at a situation where the above **three components are well balanced.** The state of balance or imbalance can be

illustrated in the figure below (Figure 7).

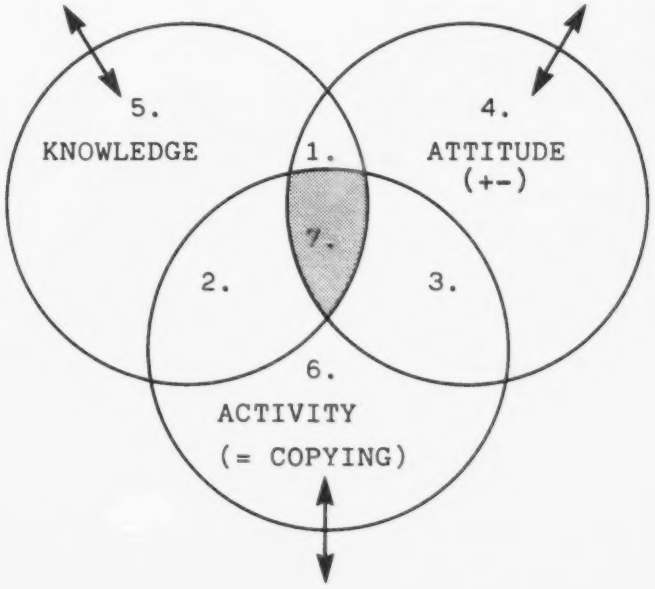

FIGURE 7. A model for describing the relationships of knowledge, attitudes and activities in the copying act

The figure should be understood in such a way that the circles are not stable. There are two extreme positions:

1) all three circles are completely separated from each other, or
2) all three circles coincide, i.e. they are on top of each other.

The above situation is merely one of an infinite number of alternatives. If the situation in copying behaviour resembled that depicted in Figure 7, what would it mean in practice?

SITUATION (see Fig. 7)	PRACTICE
1.	There is **knowledge** of the copying legislation. The attitude towards copying may be either positive (+) or negative (-). In this situation the person, however, does not take copies, for one reason or another (there is no need).
2.	**Knowledge** of copying legislation exists. The person has no attitude, i.e. on the emotional level his attitude towards copying is neutral, even indifferent (a copy is only a tool, e.g. for realizing instructional objectives, and no value-judgements are associated with it). He or she nevertheless copies with "quiet calm."
3.	A person has a certain **attitude** towards copying, but **little knowledge**. However, he has a need to copy, i.e. he **acts**. From the point of view of implementing copying legislation, the most questionable situation arises when a person has a very positive attitude towards copying, because it is highly probable that this will lead (if practical conditions allow it) to abundant copying without knowledge. Thus, the possibility of illegal copying increases.
4.	A person has a certain **attitude** (+-) towards copying. The attitude originates from insufficient or incidental knowledge and beliefs. The person does not take copies personally, and cannot thus gain experiences through personal copying behaviour. This situation has no significance in the discussion of copyright legislative issues.
5.	A person has knowledge of copying and copying legislation, but he has no need to copy. As in situation 4, this, too, does not have any significance, from the viewpoint of copyright legislation.
6.	A person **acts**, i.e. he copies. However, he has no knowledge of the copying norms and his attitude is most probably neutral or difficult to define. His compliance with the copying norms is incidental: sometimes he succeeds in copying according to the norms, sometimes not.
7.	A person has **knowledge**, he has the attitude (+-) and he **copies**. The larger this area becomes, the greater is the probability of copying in compliance with the norms. It is of course clear that increasing the volume of copying is not an end in itself. In contrast, increasing knowledge and promoting a positive attitude are undeniably worthwhile values.

What then might be the **optimum situation**, where copying knowledge, attitudes and the act of copying itself would be in a state of balance? Could it perhaps resemble the situation shown in Figure 8?

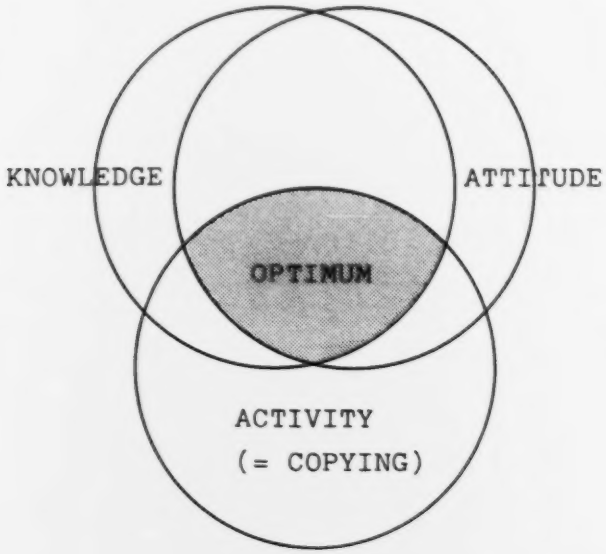

FIGURE 8. The **optimum** configuration of knowledge, attitudes and activity in the copying act

The optimum means that the teacher is sufficiently familiar with copying legislation, that he or she has a positive - but moderate - attitude towards copying, and that the amount of copying corresponds to actual needs.

Figure 9 summarizes a copyright legislative copying study; this has been derived from the knowledge-attitude-activity research paradigm described above.

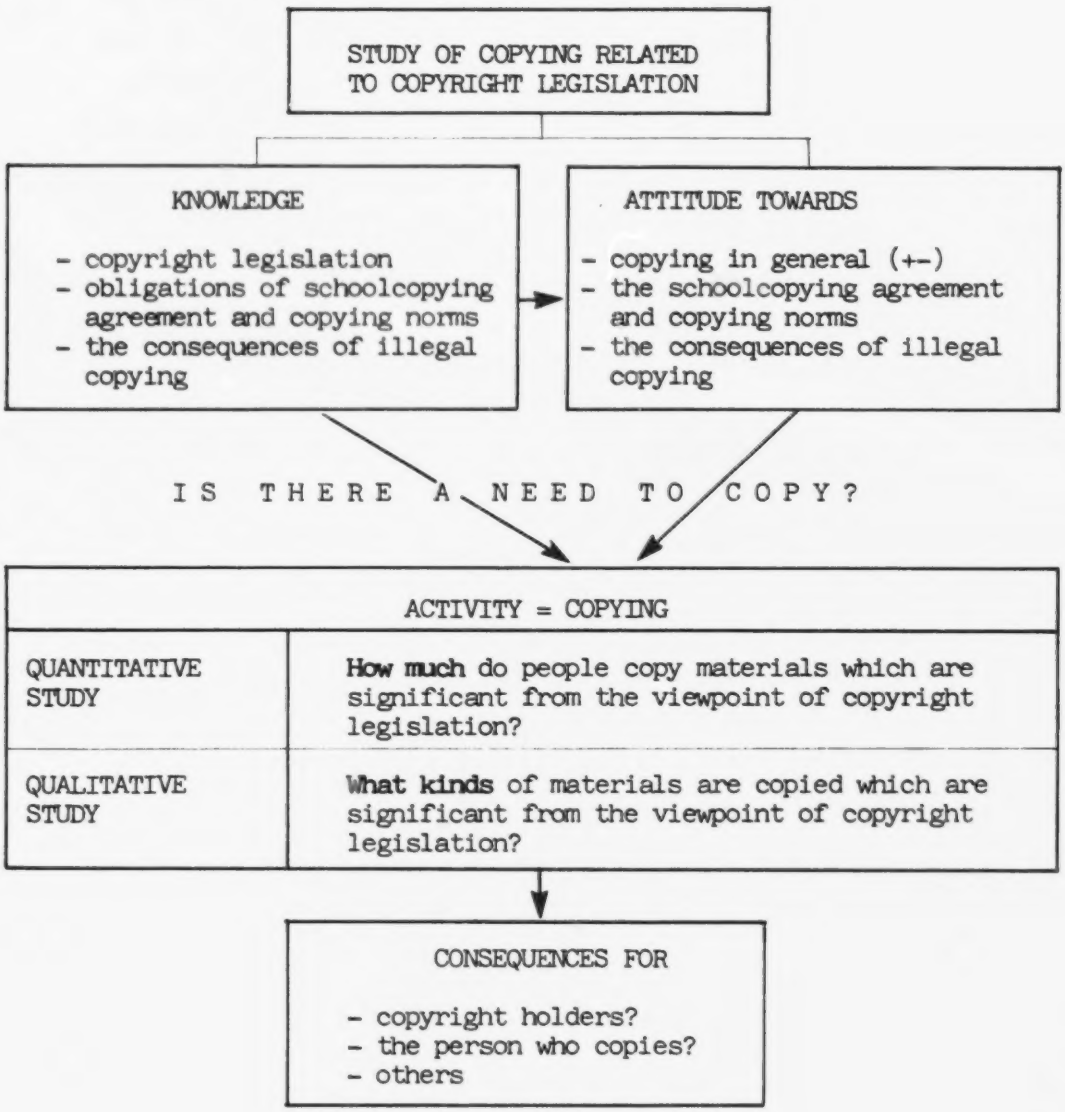
STUDY OF COPYING RELATED TO COPYRIGHT LEGISLATION
KNOWLEDGE
- copyright legislation
- obligations of schoolcopying agreement and copying norms
- the consequences of illegal copying
ATTITUDE TOWARDS
- copying in general (+-)
- the schoolcopying agreement and copying norms
- the consequences of illegal copying
IS THERE A NEED TO COPY?
ACTIVITY = COPYING
QUANTITATIVE STUDY
How much do people copy materials which are significant from the viewpoint of copyright legislation?
QUALITATIVE STUDY
What kinds of materials are copied which are significant from the viewpoint of copyright legislation?
CONSEQUENCES FOR
- copyright holders?
- the person who copies?
- others

FIGURE 9. Knowledge, attitude, activity and consequences as targets of copyright legislative copying study

Copyright legislation-related copying study is thus focused on four special areas (see Fig. 9): 1) knowledge, 2) attitudes, 3) copying activity (quantitative and qualitative) as well as 4) the consequences.

3. TARGET STUDIES OF THE ANALYSIS

During 1977-1986 **24 copying investigations** were carried out in Finland. Of these studies, 19 focused on the analysis of the quantity and quality of copying, while five can be classified mainly as studies elucidating the special problems of copying. There follows below a list of all 24 studies, according to the publication year of the report:

GENERAL INVESTIGATIONS (1 - 19)

1. The third sub-report of the KOPSE-project (1979). A study of the quantity and quality of copying in Finnish educational institutions during academic year 1977-78. The Report of the 1976 Copyright Committee.

2. COPYING IN INSTITUTIONS OF HIGHER EDUCATION IN spring 1980. (Vasama, P-M).

3. COPYING INVESTIGATION OF MUNICIPAL ADMINISTRATION 1982. Municipal central organizations and KOPIOSTO (Anttila, H.).

4. COPYING STUDY of the Evangelical Lutheran Church of Finland and the Orthodox Church of Finland 1982. KOPIOSTO (Vasama, P-M).

5. Study of the working group investigating COPYING IN STATE ADMINISTRATION. The results of Copying Study in State Administration. Memoranda of working parties of the Ministry of Education 1983:42.

6. COPYING STUDY OF THE CHURCH CENTRAL ADMINISTRATION from 1983. Church Research Centre 1984. (Haume, L.).

7. FOLLOW-UP STUDY OF COPYING IN ECONOMIC LIFE 1984 - Final report. Sampling study.

8. COPYING STUDY OF THE FEDERATION OF MUNICIPALITIES autumn 1984. KOPIOSTO & Municipal Central Organizations.

9. Copying study 1983. 1: COPYING IN EDUCATIONAL INSTITUTIONS. M-information centre.

10. Copying study 1983. 2: UNIVERSITIES AND INSTITUTIONS OF HIGHER EDUCATION. M-information centre.

11. Copying study 1983. 3: SCIENTIFIC RESEARCH INSTITUTES. M-information centre.

12. Copying study 1983. 4: COPYING IN DAY CARE CENTRES: M-information centre.

13. Copying study 1983: 5: STATE PERSONNEL TRAINING. M-information centre.

14. Copying study 1983: 6: COPYING IN STUDY CENTRES. M-information centre.

15. Copying study 1983: 7: THE SHARE OF THE PUBLISHERS IN THE COPYING OF FINNISH-PRODUCED BOOKS: M-information centre.

16. INVESTIGATION OF THE COPYING OF SHEET MUSIC by Central Government of the Church 1985. The Church Research Centre. (Haume, L.).

17. SHEET MUSIC COPYING STUDY 1986. Hardtest.

18. STUDY OF COPYING BY STUDENT AND SUBJECT ORGANIZATIONS 1986. (In preparation)

19. Questionnaire on copying in LANGUAGE INSTITUTES 1986. (In preparation).

SPECIAL STUDIES (A - E)

A. The first KOPSE-subreport (1977). Investigation of the number of copying machines in Finnish schools. Report of the 1976 Copyright Committee.

B. The second KOPSE-subreport (1977). Investigation of copying needs and pedagogical effects of copying in Finnish schools during academic year 1977-78. Report of the 1976 Copyright Committee.

C. COPYING IN TECHNOLOGICAL EDUCATIONAL INSTITUTIONS 1982. Construction Book Ltd, Constructors' Publication Ltd and The Union of Finnish Construction Engineers, registered association. M-information centre.

D. Monitoring of copying 1983. INVESTIGATION OF THE TEXT-PICTURE RATIO copied from protected material. (Vasama, P-M).

E. PEDAGOGIGAL SIGNIFICANCE OF COPYING. University of Jyväskylä. Reports from the Institute of Educational Research 356/1984. (Kuusisto, J.).

The dividing line between the general and special studies is somewhat unclear. The following definitions will elucidate the issue:

The purpose of a **general investigation** is to map out the volume of copying and the subdivision of copies into different material types.

Special investigations generally focus on solving some special problem. These may include, for example, copying motives and attitudes, pedagogical significance of copying, picture-text ratio in copying, or copying machines.

4. WHAT HAS BEEN STUDIED?

The research targets for the copying studies carried out between 1977-1986 were derived from the problems of the studies. If research problems had not been formulated in the research report, the targets were defined on the basis of the contents of the study. Research targets were divided into four main categories:

1. COPYING MACHINES
2. COPYING ATTITUDES AND OPINIONS
3. COPYING BEHAVIOUR
   - why do people copy?
   - what do they copy?
   - what is the copied original like?
   - how much do people copy?
   - how much time is spent on copying?
   - who takes copies?
   - where do people copy?
   - what does copying cost?
   - what kinds of problems occur in copying?
4. COPYING LEGISLATION, COPYING AGREEMENTS.

The targets of copying are shown in Table 1.

TABLE 1. Research targets of copying studies: What has been studied and in how many studies? (number of studies /percentage)

1. COPYING MACHINES
   - quality (6/25.0 %)
   - brand/type (4/16.7 %)
   - quantity (11/45.8 %)
   - features (2/8.3 %)
   - expenses (3/12.5 %)
   - need for use (6/25.0 %)
   - consumption of paper (4/16.7 %)

2. COPYING ATTITUDES
   - attitude towards copying (2/8.3 %)
   - opinions on copying, materials...(4/16.7 %)

3. COPYING BEHAVIOUR
   A. WHY DO PEOPLE COPY? (Motives, needs)
      - reason for copying (5/20.8 %)
      - purpose of copying (18/75.0 %)
   B. WHAT IS COPIED? (Materials)
      - target of copying, type of material, type of original material (21/87.5 %)
      - material type: picture, text... (11/45.8 %)
      - protected vs. unprotected (15/62.5 %)
   C. WHAT IS THE ORIGINAL LIKE?
      - where has it been obtained? (3/12.5 %)
      - language, country of publication (5/20.8 %)
      - author (2/8.3 %)
      - publisher (2/8.3 %)
      - ISBN/ISSN-number (4/16.7 %)
      - book/material catalogue (2/8.3 %)
   D. HOW MUCH DO PEOPLE COPY?
      - number of original pages (16/66.7 %)
      - number of copies taken from the original pages (22/91.7 %)
      - copy counter study (3/12.5 %)
      - how many persons use the copy? (1/4.2 %)
   E. HOW MUCH TIME IS SPENT ON COPYING?
      - time or number of copying times (9/37.5 %)
   F. WHO TAKES COPIES?
      - who ? (3/12.5 %)
   G. WHERE DO PEOPLE COPY?
      - where are copies taken? (3/12.5 %)
   H. WHAT DOES COPYING COST (WHO PAYS, IS IT TOO EXPENSIVE?)
      - costs (9/37.5 %)
   I. WHAT KINDS OF PROBLEMS OCCUR IN COPYING?
      - are there problems, how much consideration is given to the problems? (2/8.3 %)
4. COPYING LEGISLATION, COPYING AGREEMENTS
   - how much is known about legislation, about the copying agreement? (5/20.8 %)
   - where is the information obtained? (4/16.7 %)
   - how do people keep to the agreement? (1/4.2 %)
   - how appropriate do people find the agreements? (5/20.8 %)

The content areas of copying studies were divided into four main categories: 1) copying machines, 2) copying attitudes, 3) copying behaviour and 4) copying legislation and agreements. The main categories were divided into 33 sub-categories in order to facilitate the analysis. When the content areas were examined in summary form, it was found that the copying studies had concentrated on the clarification of the following issues:

WHAT WAS STUDIED?	IN HOW MANY STUDIES?
1. Number of copies taken from original pages	(91.7 %)
2. Target of copying, material type	(87.5 %)
3. Purpose, cause of copying	(75.0 %)
4. Number of original pages copied	(66.7 %)
5. Copying of protected vs. unprotected material	(62.5 %)

The summary indicates that the emphasis in copying studies has been on the identification of the target of copying (material type). This can be understood when the basic purpose of copying studies is remembered, i.e., the acquisition of basic information on which to base the payment of copyright compensations.

5. HOW WERE THE STUDIES CARRIED OUT?

From the point of view of the further development of copying studies, it is essential to know the kind of **method** that has been used in the investigations. This concerns both the study of the volume of copying and the analysis of the qualitative aspects of copying.

The question "how were the studies carried out" was examined in two ways:

A. What **sampling method** was used in collecting the observation material and what was
   - the size of the sample
   - the reply percentage?

B. What data collection method was used in picking the sampling unit?
   - questionnaire enquiry
   - interview
   - a copy announcement
   - a copy sample
   - copying machine counter
   - some other method

5.1. Sampling method

A total of 22 copying studies were included in the final sampling method analysis. The results can be crystallized as follows:

- **actual sampling studies** numbered 12 (54.5 %), i.e. their observation units had been picked by using some random sampling method. Random sampling was also used in two interview studies; in 10 studies (45.5 %) the observation units had been picked on the basis of judgement or the method used was a total study.

- **the size of sample** was on average 9.1 % of the size of the population; the figure is, however, inaccurate since in some studies the population had been defined at the organization level (school) while in some others the population was defined by using a person (the copier) as the observation unit.

- **the size of the sample** was 7.1 % of the population; the figure may in fact be too big because it was calculated from only 10 studies (all studies did not give the size of the sample)

- **the average return percentage**, based on 15 studies, was 72.1 %; the highest return percentage was found in the copying study of the central administration of the Church carried out in 1983 (93.2 %), the lowest in the 1984 study of the Pedagogical significance of copying (42.4 %).

5.2. Data collection method

5.2.1. Data methods currently in use

The method used to obtain information about the copying event for the researcher's analysis purposes is called the data collection method.

In copying studies information has been acquired using the following methods:

1. questionnaire
2. interview
3. copying report
4. copy samples
5. copying machine counter
6. some other data collection method

The above-mentioned methods can be used either alone or in appropriate combinations. When applied to copying research, the contents of the data collection methods can be described in the following way:

1. ENQUIRY

A. Retrospective assessment

Questionnaire forms are mailed to the target persons = informants, who have been chosen for the sample either randomly or deliberately. Questionnaires provide information, for example, on the quantity of copying, the division of copies into material types, intended use of copies, etc. The information obtained is only an estimate, because it is not based on the actual number of copies taken, but on the assessment of the informer. The questions are usually phrased as follows: "What type of material and how much did you copy during time interval x - y?". Since the assessment is made retrospectively, it may contain mistakes. The possibility of erroneous assessments is greater the longer the time span between the copying event and the assessment date.

Occasionally retrospective assessment focuses on things which are not concrete, "perceptible phenomena." Such assessment targets include, e.g. the copier's attitudes, opinions, motives, problems, etc. In this case the main aim is not to obtain completely reliable and absolutely correct information. The researcher has accepted the fact that the information he gets does not perfectly reflect the real situation. It is nevertheless the duty of every researcher to carry out the study in all respects so that the phenomenon to be measured is - at least theoretically - thoroughly investigated.

Instead of examining people, retrospective assessment may also be focused on the organization where copying takes place. The assessment is conducted by the person who is responsible for the copying, e.g. the director of the institute. The assessment may include copying equipment, copying volume and division of copies into material types.

B. Personal simultaneous assessment

A questionnaire form is mailed to the target person as above. By simultaneous assessment information is mainly gathered on the number of copies, material type division of copies and the usage of copies. Simultaneous assessment resembles copy reporting in its methodology. The copier has some sort of diary or notebook, where he marks down the number of original pages copied, plus other necessary information, immediately after every copying event.

This method has not so far been applied to copying studies, because it causes the person copying a lot of trouble. Another weakness of this method is the effect it may have in predisposing people to copying: even unnecessary copies are taken because "the study requires" this. The effect may of course

also be opposite; in other words, the copy-taker controls his copying too closely, in which case the "real" amount of copying which would correspond to need remains too low. Adequate information and advance preparations may help in avoiding the above mistakes.

C. Organization-specific simultaneous assessment

The forms are usually mailed to the head of the organization or to the person in charge. He is responsible for seeing that the copying data of the organization (e.g. the number of copying machines) are properly recorded on the questionnaire form. Actual control of the number of copies and the target of copying takes place in the copying place by using a follow-up form or a copying report. Every time he takes copies, the copier writes down the number of copies, material type and other required information. The follow-up period is usually 1-2 weeks in studies using copying reports.

2. INTERVIEW

The information obtained by an interview is, in principle, of the same kind as that acquired by postal questionnaires; in other words, it can be used in the study of nearly all issues that are essential from the point of view of copying. In addition to attitudes, opinions and facts, the interview also provides information on the volume of copying and division of materials. The information is exact if the interview data are collected from the copier in the copying situation. The later the interview is made after the actual copying situation, the less reliable become the informants' replies. This is also true of the questionnaire study.

Since the interview method is slow and expensive in relation to the benefit it produces, it cannot be recommended, at least not for investigations of copying volume. In pioneering work in the research area and pilot studies, and in acquiring more specific information, the use of the interview method is justified.

3. COPYING REPORT

Using a copying report form is most suitable for long-term monitoring of copying, where the aim is to obtain as accurate information as possible on the volume of copying and its division into different material types. In data collection a copying report form is used and this is available near every copying machine included in the study. After each copying event, information on the copying is entered on the form.

The follow-up period is usually 1-2 weeks, but it may be even longer. The longer it is, the more effectively we can eliminate the "peaks" caused by variable copying frequency (copying more than average - below average copying), a factor which may decisively distort the copying estimate.

4. COPY SAMPLE

When one sample copy of each copied original page is put aside and stored, we are referring to a copy sample. The researcher analyses the copy samples later on. The copy sample yields the following information: 1) number of original pages, 2) number of copied pages (if requested), and 3) typographical and content characteristics of the copy. The copy sample is most suitable for studying the content characteristics of the copy. An alternative method is the interview study, in which it is possible to ask about the intended use of the copy and to check out the content of copies. Interview studies, however, cause a great amount of work, and therefore the number of copies under investigation must necessarily be kept small.

Collection of copy samples is not totally problem-free. The following inconveniences at least have been encountered: 1) extra work caused by taking the copy sample; it is a huge task to take a sample copy for the researcher from a 200-page book, for example; 2) the analysis is troublesome, because the closer the analysis is, the more demanding is the investigation; 3) sampling of copy samples; for practical reasons samples cannot be obtained from a very large population, which may make the generalizability of research results questionable.

The use of copy samples as an observation unit is most appropriate for the study of special targets and especially their content characteristics. This method can be recommended for example in picture-text studies or in sheet music copying.

5. COUNTER METHOD

In the counter method the initial and final figures of the copying machine counter can be used to determine the number of copies taken during a certain time span. The use of this method is justifiable if we want to obtain volume-related data over a long-term period, and if the monitoring of copying is supposed to be exhaustive by including more targets than usual.

A great advantage of counter monitoring is its methodological facility. The copier need not do anything else than just copy, while the meter registers the number of copies. A disadvantage of meter-based monitoring is that it cannot be used to control content-related aspects, as for example, the distribution of

material types. Counter monitoring provides only volume data. When necessary, a shorter period of parallel monitoring can be used to obtain control data on material types or on the purpose of copying. Another factor increasing uncertainty is the difficulty of distinguishing actual volume of copying from paper expenditure. By determining the use of "waste paper" it is, however, possible to identify the number of real copies. Mistakes in the estimation of copying volume are also caused when the copying machine is accidentally turned on or when the paper runs out while the machine is still working. In the meter follow-up method it is necessary to have a contact person who is responsible for recording the initial and final readings of the meter and for returning the meter-reading data after the follow-up period has ended. Follow-up of meters (counter research) has been used in Finland so far (1986) only in the copying study of the Federation of Municipalities (1984). A total of 24 monitoring points (= copying machines) were included in the follow-up project. The follow-up period lasted for one week.

6. OTHER DATA COLLECTION METHODS

A. Paper consumption as an indicator of copying volume

A rough picture of copying volume can be obtained by coordinating the use of paper. Copying machine paper is also used for purposes other than copying (typing, letters), which again makes it difficult to estimate the number of copies taken on the basis of paper consumption.

B. Collecting copy material from the person who copies

During an agreed time-period all copies, as far as possible, are collected from the copier. The quantity and quality of copies is subsequently analysed.

The method can be compared to the collecting of copy samples. There are several philosophical and practical problems connected with the collection of personal material: on which basis is the sampling carried out to make it exhaustive and representative?, by which means can we make sure that all copies are included in the personal sample?, how is the analysis of the material made, etc.?

It seems that the collection of copy samples does not meet the needs of large-scale volume studies. It may be useful for special content investigations.

5.2.2. Which data collection method was used in the studies?

Table 2 presents a compilation of data collection methods used in copying studies.

TABLE 2. Data collection methods in copying studies

ENQUIRY		INTERVIEW	COPY MONITORING		COUNTER MONITORING (meter reading)
A. Organisation -specific	B. Personal		A. Copy report	B. Copy sample	
8 studies	4 studies	8 studies	8 studies	8 studies	1 study
36.4 %	18.2 %	36.4 %	36.4 %	13.6 %	4.5 %
54.6 %		36.4 %	50.0 %		4.5 %

In more than half (12) of the copying studies an enquiry was used as a data collection method. The second most frequently used method was monitoring of copies, where the most common practice (38.1 %) was a quantitative-qualitative survey made on the basis of the copying report. In one third of the studies an interview was used in data collection.

Seven studies used two data collection methods simultaneously. Most frequently a copying report was supported by an organization-specific enquiry. The purpose of the enquiry was to elucidate the copying resources of an educational institute or equivalent organization.

5.3. When were the studies carried out?

About half of the information in the copying studies was collected between 1980-83. The main body of research data was acquired during September, October or November. Another

popular time period was the beginning of the year, i.e. January, February and March.

In ten studies copy monitoring was implemented. **The average length of copy monitoring time was 10 days.**

6. EXAMINATION OF THE RELIABILITY OF THE METHODS USED IN COPYING STUDIES

In almost every copying study the researcher himself had estimated the reliability of the study. Table 3 presents the most common targets of the reliability assessments occurring in the studies.

TABLE 3. Targets of reliability assessments in the copying studies

TARGET OF RELIABILITY ASSESSMENT	NUMBER OF STUDIES IN WHICH THE ASSESSMENT OCCURRED
1. Information on COPYING QUANTITIES was hard to find; irrelevant information or material which did not belong to the study was included	7/29.2 %
2. SAMPLE was too small	5/20.8 %
3. UNRETURNED FORMS lowered the reliability of the study	3/12.5 %
4. FREE and PROTECTED materials were difficult to distinguish	3/12.5 %
5. TIMING OF COPY MONITORING: a. monitoring period was too short	2/8.3 %
b. irrelevant point of time	1/4.2 %
6. DELIBERATE SAMPLE may distort the results	2/8.3 %
7. Difficulties were encountered in the assessment of copying TARGET, INTENDED USE, MATERIAL TYPE etc.	2/8.3 %

The greatest cause for concern has been the reliability of the number of copies reported. In seven studies this was admitted straightaway. In five studies it was assumed that the small size of the sample had an effect on the generalizability of the results. The difficulty in distinguishing between material types, the timing of the copy monitoring and deliberate sampling were also assumed to cause problems from the point of view of the reliability of the study.

7. AN OVERALL CRITICAL REVIEW OF COPYING STUDIES CARRIED OUT BETWEEN 1977-1986

7.1. General

The "tidy-up operation" in the field of copying was initiated in Finland in 1976, when the extensive series of KOPSE-studies was carried out in connection with the work of the Copyright Committee. For the first time in Finland, copying needs, copying equipment, copying volume and the division of copying into material types were clarified in three investigations. With the development of copying legislation and the gradual stabilization of copying behaviour the implementation of a new copying investigation became relevant in the early 1980s. In 1983 Copying Study -83 was initiated, consisting of 8 sub-studies. Target areas included schools, educational institutions, study centres, scientific research institutes, and state personnel in-service training. The aim was to obtain information on the volume of copying and its distribution into different material types. The pedagogical significance of copying was investigated in a special research study.

There is no permanent monitoring system for copying in Finland. Acute information needs have been satisfied by small-scale individual investigations, which have provided directive evidence for copyright compensation negotiations.

Some of the separate investigations made in the 1980s may be called "pilot studies" or "pioneering studies", because the research area was unknown. The significance of such investigations may first appear strange and even questionable, especially if the intention is to utilize them in a straightforward way in copyright compensation negotiations. From the point of view of creating hypotheses and directing studies to be carried out later, their importance can hardly be questioned.

7.2. Criticism

In conclusion, an overall summary examination is presented of the copying studies which were the targets of the analysis. The main focus was on the methodological solutions chosen, primarily on sampling and data collection methods. Also some policy statements have been presented with a view to developing the monitoring system for copying.

A. ACQUISTION OF RESEARCH MATERIAL: SAMPLING

1. **The size of the sample has generally been too small.** From the smallness of the sample it follows that targets may have been selected for the sample whose copying volume or direction of copying significantly differs from the average. When expansion coefficients are used the differences in the copying volume estimate may be several million copy pages (cf. The Copying Report of Swedish Universities 1982/1983).

2. **The small size of the sample distorts the results** even more, the more heterogeneous the population is. It seems evident that this has been the case at least as far as universities and vocational schools are concerned.

3. **A heterogeneous population had not been stratified adequately in all studies,** which may have resulted in a biassed median used as an estimate. This has evidently been the case at least with the universities and vocational schools.

4. When purposive sampling is used, **the generalizability of results is doubtful.**

5. It seems probable that in the copying studies directed at institutions of higher education and vocational schools an **exhaustiveness error** has occurred, i.e. some target groups have been left out of the sample (different faculties and departments, different study lines in vocational schools).

6. In the sample some targets were **overrepresented,** while others were **underrepresented.**

B. ACQUISITION OF RESEARCH MATERIAL: DATA COLLECTION METHODS

7. **Data collection periods have been too short,** and thus the time variation has not been verified. Therefore bias may have occurred in the estimates of the total amount of copying and in the identification of material types.

8. **Data collection has concentrated on January - March and September - November,** which may mean that the estimate is misleading, at least in those study targets where different material is copied at different times (e.g. comprehensive school and upper secondary shool).

9. In volume studies **the form for the monitoring of copying during a 1 - 2 week period does not give a sufficiently accurate picture** of the total volume of copying.

10. **The questions** used in the forms which have been formulated for the monitoring of copying for the identification of material types **have not been exhaustive enough to provide the necessary information.** On the other hand, the difficult phrasing of the questions and their great number may have diminished respondents' willingness to answer. This matter has not often been verified in copying studies; the return percentage has usually been given at the level of the educational institute, not at the teacher level.

11. **Some protected material may have been left unreported in the copying report or data collection form,** because a) the copier has not known what protected material is and because b) the copier has taken copies illegally and has, therefore, not marked down his copying on the form.

12. **Interviews should not be used for data collection, except in some special cases.** Using an interview is justified, for example, in the mapping of an unknown target area. The interview method is particularly inaccurate in the collection of volume data and material type data, because resources do not usually allow the number of observation units to be made so large that statistical generalization would be possible. The interview is very suitable for attitude surveys and for user needs analyses when the phenomenon field is relatively stable.

13. **Parallel measurements have seldom been used** to improve the reliability of the results.

C. OTHER POINTS

14. **The effect of copying on the recipient has not been investigated.** Copying studies have been mainly descriptive, and have not aimed at explanations.

15. **Almost no attention has been given to the special problems of copying** when extensive copying surveys have been made. There is an apparent need for research at least in the copying of **sheet music**, the copying of **pictures** and the copying of **material with restricted circulation.**

16. **The copying investigations lack continuity.** Buying copying research services from commercial research institutes does not make possible the creation of a research tradition nor does it clarify research practices with a view to subsequent investigations.